

REMARKS

The attorneys of record have changed and a Revocation and Power of Attorney has previously been submitted. The Patent Office is kindly asked to update its records to reflect the new attorney docket number of I084 1250.

A separate Declaration under 37 CFR 1.132 of co-inventor Amir Satran is being concurrently submitted.

In the Office Action mailed April 21, 2004, the Examiner rejected claim 16 as being anticipated by "Satran" (WO 00/02693), and rejected claim 1-16 as being unpatentable over Satran³. Claim 1-16, as amended, and new claims 17-25 are pending.

The Satran Reference

Satran, with respect to its Figs. 6A and 6B, discloses a slotting cutter having cutting inserts that are circumferentially staggered along the periphery of a disk-shaped cutter. Such a prior art circumferentially staggered formation is discussed on page 1 of the present application. In such a formation, the cutting inserts alternate along the circumferential direction, one cutting insert protruding on only the left side of the tool body, while the next cutting insert protrudes on the right side of the tool body.

Satran's Figs. 1 to 5a disclose a cutting insert 1 having identical front and rear operative surfaces 2. The front operative surface 2 is bound by identical upper and lower main cutting edges 10 associated with the upper and lower surfaces 6, identical auxiliary cutting edges 12 associated with the side surfaces 8, and four identical corner cutting edges 14 which are rounded and extend between adjacent main cutting edges 10 and auxiliary cutting edges 12, merging continuously therewith. The main cutting edges 10, the auxiliary cutting edges 12 and the corner cutting edges 14 are provided with a land 26 extending therefrom towards respective chip rake surfaces 20, 22 and 24 associated therewith.

³ The Examiner evidently withdrew the rejection over "Arai" (EP 0 5050 574), set forth in the final office action mailed 12/31/03, in view of the claim amendments and/or arguments set forth in the Amendment filed March 22, 2004.

The operative front and rear surfaces 2 have lateral portions 40 which extend inwardly away from the auxiliary cutting edges 12 towards a central portion 42 and merge therewith via intermediate portions 44. When the cutting insert 1 is mounted in a cutting tool, the lateral portions 40 of its operative rear surface 2 function as the insert's positioning surfaces. And, as best seen in Fig. 6B, the cutting insert is abutted not only at its operative rear surface 2 at two-spaced apart points, but also at a single point along one of its side surfaces 8.

Rejection of Claim 1 under 35 USC 103

In formulating the rejection of claim 1, the Examiner first conceded that the Satran's insert has cutting edges on only two sides, but then (1) took official notice that "it is common for insert to have cutting edges on all four sides", citing prior art references that show cutting inserts with four sides, and (2) argued that "[i]t would have been obvious to one of ordinary skill in the art to have modified Satran by having cutting edges on all four corners⁴, as is well known, in order to have two additional cutting edges to shift to, thus reducing costs by doubling the life of the insert."

The Examiner's rejection of claim 1 is traversed. Applicants do not dispute that, generally speaking, cutting inserts with four identical sides exist in the prior art. However, Applicants submit that there is no reason why one skilled in the art, upon seeing the rotary cutter of Satran (See Figs. 6A & 6B of Satran) and the cutting insert 1', 1'' therein, would find it obvious to replace Satran's cutting insert 1' or 1'' with a cutting insert having four identical sides.

As described above, Satran's operative front and rear surfaces are provided with 'main cutting edges' associated with the top and bottom surfaces, 'auxiliary cutting edges' associated with the side surfaces, and 'corner cutting edges' connecting the main and auxiliary cutting edges. Furthermore, as seen in Fig. 1, the operative front and rear surfaces are each provided with a pair of "lateral portions 40" which function as the insert's positioning surfaces.

The Examiner argues that it would be obvious to modify Satran's cutting insert to have four identical sides. It is respectfully submitted that this cannot be. If Satran's cutting insert were provided with four identical side surfaces, then:

⁴ It is believed that the Examiner meant "sides" and not "corners". Alternatively, it is possible that the Examiner has not appreciated the fact that Satran's cutting insert has two operative surfaces, each provided with main cutting edges, auxiliary cutting edges and corner cutting edges connecting the two.

- (1) all four side surfaces would be provided with a pair of auxiliary cutting edges 12;
- (2) all four side surfaces would be provided with the lateral portions 40; and
- (3) the insert pocket would need to be modified accommodate for (2).

As to (1), this would mean that adjacent side surfaces would have to share auxiliary cutting edges. Due to wearability considerations, one skilled in the art simply would not design a cutting insert where it was expected that the same cutting edge be used in an identical manner, after the cutting insert was indexed. (See Satran Declaration at ¶¶ 5-6).

As to (2) & (3), this would result in adjacent side surfaces presenting a total of four “lateral portions 40” functioning as the insert’s positioning surfaces. This would require modifying Satran’s insert receiving pocket so that the insert receiving pocket’s lateral abutment (which in Satran’s Fig 6B currently abuts the side surface 8) accommodates the changes to the side surface. And modifying the insert receiving pocket’s abutment surfaces to abut all four lateral portions 40 of the modified cutting insert (two on the ‘back’ and two on the ‘side’) would not be obvious to one skilled in art, due to concerns about achieving consistent, stable seating during cutting operations. (See Satran Declaration at ¶¶ 7-8).

In view of all the foregoing, it is submitted that it would not be obvious one skilled in the art to modify Satran’s cutting insert as suggested by the Examiner, and change the insert receiving pocket to accommodate the modified cutting insert.

Rejection of claims 7, 8 and 16

Dependent claim 7 and independent claims 8 and 16 now recite that “each cutting insert axially protrudes on both sides of the tool body.” This feature clearly is not present in Satran, which shows each cutting insert axially protruding on only one side of the tool body, as is customary in a circumferentially staggered formation (See Satran’s Fig. 6A).

New claims 17-25

New dependent claims 17-18 and new independent claim 19 recite, “wherein all the cutting inserts are aligned with one another in an axial direction along the rotary axis, each component side surface of one cutting insert being axially aligned with a corresponding

component side surface of each of the other cutting inserts". This feature clearly is not disclosed in Satran, which shows cutting inserts in a "staggered" formation. New independent claim 19 also recites that each cutting insert has "a second opposite pair of component side surfaces symmetrical with respect to said plane of rotation", a feature clearly not disclosed in Arai.

New independent claim 21 recites, inter alia, that "all the cutting inserts are symmetric about a common plane of rotation of the tool body." This feature is clearly not disclosed in either Satran or in Arai.

New independent claim 23 recites, inter alia, that "wherein the rear component side surface is the only component side surface abutted by the insert receiving pocket." This contrasts with Satran which shows in, e.g., Fig. 6B, that both a rear surface and a side surface are abutted, when the cutting insert is retained in the cutting insert pocket.

New dependent claim 24 recites, inter alia, that "all the cutting inserts are symmetric about a common plane of rotation of the tool body." This feature is clearly not disclosed in either Satran or in Arai.

Dependent claims 20, 22 and 25 recite "wherein each cutting insert axially protrudes on both sides of the tool body." This feature is clearly not disclosed in either Satran or in Arai.

Amendment to the Specification

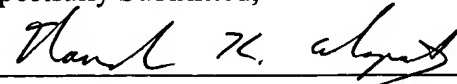
The specification has been amended to introduce language that corresponds to the amended claims. It is submitted that the original text and figures support the changes and so new matter has been introduced into the application.

Reconsideration of the application is requested. Claims 1-25 are believed to be in allowable form and define over the prior art of record. An early notice of allowance is requested so that the application may proceed to issue.

A separate Fee Transmittal Sheet is enclosed.

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Respectfully Submitted,



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